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  44 FILES SEARCHED...
  62 FILES SEARCHED...
L1          25 CAV2.2 AND SPLICE VARIANT AND PAIN

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AN 2001:514760 BIOSIS
DN PREV200100514760
TI N-type Cav2.2 alpha1 splice variants
in nociceptive neurons.
AU Bell, T. J. [Reprint author]; Thayler, C. [Reprint author]; Lipscombe, D.
[Reprint author]
CS Dept of Molec, Cellular Bio, Brown Univ, Providence, RI, USA
SO Society for Neuroscience Abstracts, (2001) Vol. 27, No. 1, pp. 998. print.
Meeting Info.: 31st Annual Meeting of the Society for Neuroscience. San
Diego, California, USA. November 10-15, 2001.
ISSN: 0190-5295.
DT Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 7 Nov 2001
Last Updated on STN: 23 Feb 2002

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L1 25 ANSWERS USPATFULL
AN 2006:254921 USPATFULL
TI Quinazolines useful as modulators of ion channels
NCL NCLM: 514/234.200
NCLS: 514/252.170; 514/266.220; 544/114.000; 544/284.000
IC IPCI A61K0031-5377 [I,A]; A61K0031-5375 [I,C*]; A61K0031-517 [I,A];
C07D0413-02 [I,A]; C07D0413-00 [I,C*]; C07D0043-02 [I,A]
IPCR A61K0031-517 [I,C]; A61K0031-517 [I,A]; A61K0031-5375 [I,C];
A61K0031-5377 [I,A]; A61K0031-541 [I,C*]; A61K0031-541 [I,A];
C07D0413-00 [I,C]; C07D0413-02 [I,A]; C07D0417-00 [I,C*];
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DN PREV200100514760
TI N-type Cav2.2 alpha1 splice variants
in nociceptive neurons.
AU Bell, T. J. [Reprint author]; Thayler, C. [Reprint author]; Lipscombe, D.
[Reprint author]
CS Dept of Molec, Cellular Bio, Brown Univ, Providence, RI, USA
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LA English

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L1   ANSWER 2 OF 25 DISSABS
AN   2005:4464 DISSABS   Order Number: AAI3134249
TI   Cell-specific alternative splicing of the calcium channel subunit in
     single nociceptive neurons
AU   Bell, Thomas Joseph [Ph.D.]; Lipscombe, Diane [advisor]
CS   Brown University (0024)
SO   Dissertation Abstracts International, (2004) Vol. 65, No. 5B, p. 2235.
     Order No.: AAI3134249. 148 pages.
DT   Dissertation
FS   DAI
LA   English
ED   Entered STN: 20050128
     Last Updated on STN: 20050128

L1   ANSWER 3 OF 25 IFIPAT
AN   10706990 IFIPAT;IFIUDB;IFICDB
TI   NOCICEPTIVE NEURON SPECIFIC CALCIUM CHANNEL ISOFORM AND USES THEREOF
INF   Bell; Thomas J., Turnersville, NJ, US
      Castiglioni; Andrew J., Arlington, MA, US
      Lipscombe; Diane, Barrington, RI, US
      Thaler; Christopher J., Newtown, PA, US
IN   Bell Thomas J; Castiglioni Andrew J; Lipscombe Diane; Thaler Christopher
      J
PAF   Brown University Research Foundation, Providence, RI, US
PA   Brown University Research Foundation Inc (13513)
AG   WOLF GREENFIELD & SACKS, PC;FEDERAL RESERVE PLAZA, 600 ATLANTIC AVENUE,
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PI   US 2004214238   A1 20041028
AI   US 2003-736883   20031215
PRAI US 2003-443474P   20030129 (Provisional)
FI   US 2004214238   20041028
DT   Utility; Patent Application - First Publication
FS   CHEMICAL
      APPLICATION
OS   CA 141:361538
ED   Entered STN: 1 Nov 2004
      Last Updated on STN: 23 Oct 2006
GOVI This work was funded in part by the National Institutes of Health under
      grant numbers NS29967 and NS43082. The government may have certain rights
      in this invention.
PARN This application claims the benefit under 35 U.S.C. (sec) 19(e) of U.S.
      provisional application serial No. 60/443,474, filed Jan. 29, 2003, the
      disclosure of which is incorporated by reference herein.
CLMN 29
GI   17 Figure(s).
     FIG. 1 shows RT-PCR analysis of e37a and e37b splice
      variants.
     FIG. 2 shows RT-PCR analysis of e37a and e37b in single DRG neurons.
     FIG. 3 shows single cell RT-PCR (scRT-PCR) analysis of CaV2.
      2 e37a and e37b in capsaicin-responsive and capsaicin-
      nonresponsive neurons.
     FIG. 4 shows the experimental protocol used in various experiments.
     FIG. 5 shows whole cell calcium currents in capsaicin-responsive and
      capsaicin-non-responsive neurons.
     FIG. 6 shows that omega-Ctx GVIA-sensitive calcium currents in
      capsaicin-responsive and capsaicin-non-responsive neurons.
     FIG. 7 shows that LVA currents rundown significantly over a 5 minute time

period in capsaicin-non-responsive neurons.

FIG. 8 shows omega-Ctx GVIA-sensitive calcium currents in capsaicin-responsive neurons that contain and lack e37a.

FIG. 9 shows competitive RT-PCR analysis of e37a and e37b in whole tissue and single neurons.

FIG. 10 shows that multiple splice forms of CaV2.2 are expressed in dorsal root ganglia. FIG. 10a, Putative membrane topology of the CaV2.2 subunit. The approximate location of constitutively expressed exons (horizontal black lines) and alternatively spliced exons, e18a, e24a, e31a and e37a/e37b (blue circles) are shown. FIG. 10b, RT-PCR analysis of e18a, e24a, and e31a in mRNA isolated from rat DRG. Primers flanked each splice site and generated the following products: 227 and 290 bp for Delta e18a and +e18a; 114 and 126 bp for Delta e24a and +e24a; and 169 and 175 bp for Delta e31 a and +e31 a. PCR-derived cDNA products were separated on a 2% agarose (e18a) or 4% Metaphor agarose gel (e24a and e31a). Results are consistent with previous analyses of these sites of alternative splicing by RTPCR and ribonuclease protection assays (Lin et al., 1997; Lin et al., 1999; Pan and Lipscombe, 2000).

FIG. 11 shows that capsaicin-responsiveness in DRG neurons is correlated with the presence of VR1. DRG neurons were screened for capsaicin-responsiveness by whole cell recording (n=269 cells). Whole cell currents recorded from FIG. 11a, a nonresponsive neuron and FIG. 11b, a capsaicin-responsive neuron. The membrane potential was voltageclamped at-60 mV. The horizontal bar indicates the time and duration of capsaicin application (2 mu M). No inward current was detected in 141 neurons. Inward currents were induced in 128 neurons during capsaicin challenge, with an average amplitude of 986+-118 pA. FIG. 1c, PCR-derived cDNA products amplified in two sets of reactions from 5 individual neurons (lanes 1-5) using VR1 and GAPDH-specific primers. The predicted size of PCR products was 125 bp and 274 bp, respectively. The capsaicin-responsiveness of each cell is indicated between gels (+ or -). FIG. 1d, Histogram showing the percentage of non-responsive cells (gray) and capsaicin-responsive cells (red) containing VR1. PCR products were amplified in 89% of capsaicin-responsive cells (25 of 28) with VR1 primers compared to 13% of non-responsive cells (2 of 15).

FIG. 12 shows that expression patterns of exons, e18a, e24a, and e31a, do not correlate with capsaicin-responsiveness. Representative gels showing single cell RT-PCR-derived cDNA products amplified using CaV2. 2-specific primers flanking exons FIG. 12a, eb18a; FIG. 3b, e24a; and FIG. 12c, e31a, together with histograms summarizing the distribution of exons based on capsaicin-responsiveness. Control GAPDH-specific primers are used in each single cell reaction. Products amplified from four cells are shown for each primer pair (lanes 1-4). In FIG. 12c, the first two lanes show products amplified from CaV2.2e(Delta 31a) and CaV2.2e(+e31 a) clones to establish that a 6 bp difference is resolvable in a 4% Metaphor gel. Sizes of cDNA products were respectively, 227 bp and 290 bp for Delta e18 and +e18a; 114 bp and 126 for Delta e24a and +e24a; and 169 bp and 175 bp for .e31a and +e31a. Histograms show percent cells that lack the specified exon (A) and that express both splice isoforms lacking and containing the exon (both). Histograms separate cells based on capsaicin-non-responsiveness (gray) and capsaicin-responsiveness (red). The total number of cells analyzed is shown below each histogram. Capsaicin responsiveness of each cell is indicated between gels (+ or -).

FIG. 13 shows that exon 37a is expressed exclusively in dorsal root ganglia. FIG. 13a, Splicing pattern of mutually exclusive exons e37b and e37a of CaV2.2e(37a) based on analysis of the public rat genomic sequence (accession number NW 043710) and our sequencing (accession number AY211499). Exons are denoted with solid bars and introns with horizontal

lines. Exon lengths are 128, 97, 97, and 109 bps for e36, e37a, e37b, and e38 respectively (accession numbers AY211499 and AY211500). 37a amino acid sequence is CCR1 YKDMYSLLRCIAPPVGLGKNCPRRLAY (SEQ ID NO:46); 37b amino acid is sequence CGRISYNDMFEMLKHMSPPLGLGKKCPARVAY (SEQ ID NO:47) FIG. 13b, Expression pattern of e37b and e37a in RNA isolated from various regions of the adult rat nervous system. SCG, superior cervical ganglia; DRG, dorsal root ganglia; SC, spinal cord; MD, medulla; MB, midbrain; CM, cerebellum; TH, thalamus; HC, hippocampus; CX, cortex. Primers were exon-specific for e37a and e37b. PCR-derived products were separated on a 3% agarose gel. Each lane contains equal amounts of PCR reaction. FIG. 13c and FIG. 13d, Levels of CaV2.2 mRNA containing e37a and e37b were estimated in P5 (FIG. 13c), and adult (FIG. 13d) DRG tissue by competitive RT-PCR. Each primer pair generated two PCR products, 108 bp from CaV2.2 cDNA and 135 bp from competitive template. Gel shows products amplified by RT-PCR of RNA isolated from whole DRG (500 pg per reaction=5 single cells) for e37a and e37b in the presence of serial dilutions of competitive template (10-18 to 10-22 M). In P5 tissue, FIG. 13c, the e37b competitive template product was completely depleted at 5x10-21 M by the tissue-derived e37b template. The two were approximately equal in intensity at 5x10-20 M. The e37a competitive template product was completely depleted at 5x10-22 M by the tissue-derived e37a template. The two were approximately equal in intensity at 5x10-21 M. In adult tissue, FIG. 13d, the e37b competitive template product was completely depleted at 1x10-21 M by the tissue-derived e37b template. The two were approximately equal in intensity at 5x10-20 M. The e37a competitive template product was completely depleted at 1x10-22 M by the tissue-derived e37a template. The two were approximately equal in intensity at 5x10-21 M. These gels are representative of three experiments that gave similar results.

FIG. 14 shows that exon 37a is preferentially expressed in nociceptive neurons. Single neurons were analyzed by RT-PCR and the expression pattern of e37a correlated with capsaicinresponsiveness. FIG. 14a and FIG. 14b, Histogram summary showing the number of cells expressing e37b and e37a in capsaicin-non-responsive neurons (gray) and responsive neurons (red). e37a-specific primers amplified products in 32 of 58 capsaicin-responsive and 5 of 27 non-responsive neurons. FIG. 14c, Histogram summary of the number of cells expressing e37a, NaV1.8, and both e37a and NaV1.8, in 24 capsaicin-responsive cells. FIG. 14d, Representative gels showing RT-PCR products amplified with e37a, e37b and GAPDH-specific primers from four single cells (lanes 1-4). The capsaicin-responsiveness of each cell is indicated between gels (+ or -). FIG. 14e, Gels showing RT-PCR products amplified with NaV1.8, e37a, and GAPDH-specific primers from four neurons (lanes 1-4). The capsaicinresponsiveness of each neuron is indicated between gels (+ or -).

FIG. 15 depicts a comparison of calcium channel currents in capsaicin-non-responsive and responsive neurons. FIG. 15a, Average, peak current-voltage relationships for whole cell calcium currents measured in capsaicin-responsive (smallcircle) and non-responsive (composite) neurons of dorsal root ganglia. Average, peak current density and capacitance were, for capsaicin-responsive neurons: 135+-19 pA/pF and 18+-2 pF, n=20; for capsaicin-non-responsive neurons: 123+-17 pA/pF and 27+-3 pF, n=9. Curves are fit with the sum of two BoltzmannGHK functions. Estimated V1/2 values were-45 mV and -15 mV for low and high voltage-activated currents, respectively. Upper inset: Representative, low voltage-activated and high voltageactivated whole cell calcium currents activated by voltage steps to-40 mV and -5 mV, respectively, from a holding potential of-80 mV from a capsaicin-non-responsive neuron. Lower inset: Same as upper inset from a capsaicin-responsive neuron. Scale bars: 1 nA, 10 ms. FIG. 15b, Average, peak current voltage relationships for omega-Ctx GVIA-subtracted calcium current in capsaicin-responsive (small-circle) and non-responsive

(composite) neurons. Average, peak current densities were 111+-12 pA/pF (n=20) for capsaicin-responsive compared to 72+-8 pA/pF (n=9) for non-responsive neurons. These values are significantly different (p<0.05). The omega-Ctx GVIA-sensitive current was 71+-2% of the total whole cell calcium current in capsaicin-responsive neurons and 68+-2% of whole cell current in non-responsive neurons. Curves are fit with the sum of two Boltzmann-GHK functions. Average V1/2 and k values were calculated from fits of individual N-type currentvoltage relationships. In capsaicin-non-responsive cells, for the low voltage-activated componefit, V1/2 and k values were25+-4 mV and 4.8+-0.5 compared to-21+2 mV and 6+-0.6 for capsaicin-responsive cells. In capsaicin non-responsive neurons average V1/2 and k values were, for the high voltage-activated component:-16+2 mV and 5.4+-0.6 compared to-15+-1 mV and 5.2+0.3 for capsaicin-responsive cells. Values of V1/2 and k were not significantly different between capsaicin-responsive and capsaicin-non-responsive neurons (p>0.05). Inset, Representative omega-Ctx GVIA-sensitive current recorded at-5 mV from a capsaicin-responsive neuron (lower trace) and nonresponsive neuron (upper trace). Scale bar: 25 pA/pF, 10 ms. Data are mean+-se.

FIG. 16 show that exon 37a expression is associated with larger N-type currents in capsaicin-responsive neurons. FIG. 16a, Average, peak current-voltage relationships of omega-Ctx GVIAsensitive calcium current in capsaicin-responsive neurons that contain (small-circle) and lack (composite) e37a. Average peak current density at 0 mV and capacitance of responsive neurons that contain e37a were 122+-11 pA/pF and 20+-3 pF (n=8) compared to 76+-3 pA/pF and 18+-1 pF for neurons that lack e37a (n=8). Peak current densities are significantly greater in neurons containing e37a (p<0.05). Current densities were significantly different between splice isoforms when compared at-10 mV,-5 mV, 0 mV, +5 mV, and +10 mV (p<0.05). Curves are Boltzmann-linear IV fits. Average V1/2 and k values are-12.7+1.8 mV and 4.6+-0.4, n=8, for neurons containing e37a compared to-13.6+-1.7 mV and 5.4+-0.3, n=8, for neurons lacking e37a. V1/2 and k values are not significantly different between the two groups (p>0.05). Inset shows examples of toxin-subtracted currents from neurons containing (small-circle) and lacking (composite) exon 37a. Scale bars are 10 ms and 20 pA/pF. FIG. 16b, Averages of time constants estimated from fits of the activation phase of toxin-subtracted N-type currents induced by step depolarizations to indicated test potentials, from capsaicin-responsive neurons containing (small-circle) and lacking (composite) exon 37a. FIG. 16c, Average time constants estimated from fits of the inactivation kinetics of toxin-subtracted N-type currents induced by step depolarizations to indicated test potentials, from capsaicinresponsive neurons containing (small-circle) and lacking (composite) exon 37a. FIG. 16d, Representative gels showing RTPCR products amplified from four single cells (lanes 1-4) with primers specific for e37a, e37b, and GAPDH. Cells were used in the analysis shown in FIG. 16a. Data are mean+-se.

FIG. 17 shows that CaV2.2e(37a) clones induce N-type currents in Xenopus oocytes that are significantly larger compared to CaV2. 2e(37b). FIG. 17a, Average peak current-voltage relationships in oocytes expressing CaV2.2e(37a) () and CaV2.2e(37b) (composite). After 5 days post injection, average CaV2.2e(37a) peak currents were 211+-2 nA (n=8) compared to 134+4 nA for CaV2.2e(37b) (n=8). Peak CaV2.2e(37a) currents were significantly greater than CaV2.2e(37b) at day 4, 5 and 6 after injection (p<0.05). The dotted line shows the predicted current voltage-relationship of CaV2.2e(37b) calculated using the Boltzmann activation curve of CaV2.2e(37a) shown in FIG. 17b. This predicted curve demonstrates that an 8 mV left shift in voltage-dependence of channel activation (see FIG. 17b) is insufficient to account for the significantly larger currents of CaV2.2e(37a) compared to CaV2.2e(37b). Inset: Representative CaV2.2e(37a) and CaV2.2e(37b) currents induced by

step depolarizations to peak current (-5 mV for CaV2.2e(37a) and 0 mV for CaV2.2e(37b)) from a holding potential of-80 mV. Scale bar: 50 nA, 20 ms. V1/2 and k values were estimated from Boltzmann-GHK fits to individual data sets. Average V1/2 values are-17.9+-0.6 mV, n=8, for CaV2.2e(37a) and -9.7+-0.4 mV, n=8, for CaV2.2e(37b). k values are 5.3+-0.1 for CaV2.2e(37a) and 5. 1+-0.1 for CaV2.2e(37b). Average, macroscopic activation time constants Tact are 7.2+-0.5 ms for CaV2.2e(37a), n=8, and 10.6+0.5 ms for CaV2.2 e(37b), n=9. These values are significantly different (p<0.05). Peak currents in oocytes expressing CaV2. 2e(37a) were 186+-2 nA (n=4), 211+-2 nA (n=8), and 387+-20 nA (n=8) at days 4, 5 and 6 days post injection, respectively. Compared to 68+-2 nA (n=3), 134+-2 nA (n=8), and 204+-10 nA (n=8) at 4, 5 and 6 days post injection, respectively, in oocytes expressing CaV2.2e(37b). In all cases values between splice isoforms were significantly different on a given day (p<0.05). FIG. 17b, Normalized, averaged activation curves for N-type currents in oocytes expressing CaV2.2e(37a) (smallcircle) and CaV2.2e(37b) (composite). Curves were generated from slope conductances calculated from peak current-voltage relationships shown in FIG. 8a, and assuming a reversal potential of +40 mV. Boltzmann functions were fit to individual curves and used to calculate average values for V1/2 and k. These were for CaV2.2e(37a):-19.7+-0.6 mV and 4.4+-0.2; and for CaV2.2e(37b):-11.7+-0.5 mV and 4.7+-0.1. V1/2 values are significantly different (p<0.05); k values are not significantly different. FIG. 17c, Normalized, averaged steadystate inactivation curves for N-type currents in oocytes expressing CaV2.2e(37a) (small-circle) and CaV2.2e(37b) (composite). Curves were generated from peak currents elicited by 300 ms test pulses to-5 mV (CaV2.2e(37a), n=12) or 0 mV (CaV2.2e(37b), n=11) after 20 second conditioning prepulses to voltages ranging from-100 mV to +20 mV. Barium (5 mM) was the charged carrier. Peak currents are plotted as a fraction of the maximum current at the indicated holding potentials. V1/2 and k values were estimated from Boltzmann fits to data from individual cells. Average V1/2 and k values were for CaV2. 2e(37a):-72.7+-0.8 mV and 8.1+-0.4; and for CaV2.2e(37b):-72. 0+-0.4 mV 8.1+-0.6. Values are not significantly different. Inactivation kinetics were also measured, CaV2.2e(37a): tau inact-1=393+-17 ms and tau inact-2=89+-5 ms compared to 384+-8 ms and 82+-2 ms for CaV2.2e(37b). Values are not significantly different between splice isoforms. These data are representative of four separate injections. Data are mean+-se. !

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L1   ANSWER 4 OF 25  USPATFULL on STN
AN      2007:291200  USPATFULL
TI      Soluble salts of thieno[2,3-d]pyrimidine derivatives
IN      Cooper, Martin Ian, Cambridgeshire, UNITED KINGDOM
        Frampton, Christopher Stephen, Suffolk, UNITED KINGDOM
PA      Dynogen Pharmaceuticals, Inc., Waltham, MA, UNITED STATES, 02451 (U.S.
        corporation)
PI      US 20070254899      A1  20071101
AI      US 2007-728966      A1  20070327 (11)
PRAI    US 2006-788565P     20060331 (60)
        US 2006-808905P     20060526 (60)
DT      Utility
FS      APPLICATION
LREP    LAHIVE & COCKFIELD, LLP, ONE POST OFFICE SQUARE, BOSTON, MA, 02109-2127,
        US
CLMN    Number of Claims: 19
ECL     Exemplary Claim: 1
DRWN    1 Drawing Page(s)
LN.CNT 2940
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 5 OF 25  USPATFULL on STN
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AN     2007:291192  USPATFULL
TI     Crystalline forms of 4-(2-fluorophenyl)-6-methyl-2-(piperazin-1-
       yl)thieno[2,3-d]pyrimidine
IN     Cooper, Martin Ian, Cambridgeshire, UNITED KINGDOM
       Frampton, Christopher Stephen, Suffolk, UNITED KINGDOM
PA     Dynogen Pharmaceuticals, Inc., Waltham, MA, UNITED STATES, 02451 (U.S.
       corporation)
PI     US 20070254891      A1  20071101
AI     US 2007-728947      A1  20070327 (11)
PRAI   US 2006-788338P     20060331 (60)
       US 2006-808603P     20060526 (60)
DT     Utility
FS     APPLICATION
LREP   LAHIVE & COCKFIELD, LLP, ONE POST OFFICE SQUARE, BOSTON, MA, 02109-2127,
       US
CLMN   Number of Claims: 33
ECL    Exemplary Claim: 1
DRWN   11 Drawing Page(s)
LN.CNT 3877
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 6 OF 25  USPATFULL on STN
AN     2007:243755  USPATFULL
TI     Peptides and Calcium Regulation in Mammalian Cells
IN     BEST, Philip M., Urbana, IL, UNITED STATES
       JONES, Janice, Champaign, IL, UNITED STATES
       HANSEN, Jared P., Peoria, IL, UNITED STATES
       LIN, Zuojun, Urbana, IL, UNITED STATES
       WEIS, Karen E., Champaign, IL, UNITED STATES
       CHU, Po-Ju, Taipei, TAIWAN, PROVINCE OF CHINA
PA     THE BOARD OF TRUSTEES OF THE UNIVERSITY OF ILLINOIS, Urbana, IL, UNITED
       STATES (U.S. corporation)
PI     US 20070213267      A1  20070913
AI     US 2006-537323      A1  20060929 (11)
PRAI   US 2005-722707P     20050930 (60)
DT     Utility
FS     APPLICATION
LREP   GREENLEE WINNER AND SULLIVAN P C, 4875 PEARL EAST CIRCLE, SUITE 200,
       BOULDER, CO, 80301, US
CLMN   Number of Claims: 35
ECL    Exemplary Claim: 1
DRWN   38 Drawing Page(s)
LN.CNT 4435
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 7 OF 25  USPATFULL on STN
AN     2007:107481  USPATFULL
TI     Pyrimidines and pyrazines useful as modulators of ion channels
IN     Wilson, Dean, San Diego, CA, UNITED STATES
       Termin, Andreas, Encinitas, CA, UNITED STATES
       Fanning, Dewey, San Marcos, CA, UNITED STATES
       Krenitsky, Paul, San Diego, CA, UNITED STATES
       Joshi, Pramod, San Diego, CA, UNITED STATES
       Sheth, Urvi, San Diego, CA, UNITED STATES
PI     US 20070093454      A1  20070426
AI     US 2006-418163      A1  20060504 (11)
PRAI   US 2005-678104P     20050504 (60)
DT     Utility
FS     APPLICATION
LREP   VERTEX PHARMACEUTICALS INC., 130 WAVERLY STREET, CAMBRIDGE, MA,
       02139-4242, US
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CLMN   Number of Claims: 32
ECL    Exemplary Claim: 1
DRWN   No Drawings
LN.CNT 2955
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 8 OF 25  USPATFULL on STN
AN      2007:95187  USPATFULL
TI      Pyridines useful as modulators of ion channels
IN      Wilson, Dean, San Diego, CA, UNITED STATES
        Termin, Andreas, Encinitas, CA, UNITED STATES
        Fanning, Dewey, San Marcos, CA, UNITED STATES
        Krenitsky, Paul, San Diego, CA, UNITED STATES
        Joshi, Pramod, San Diego, CA, UNITED STATES
PI      US 20070082889      A1  20070412
AI      US 2006-418278      A1  20060504 (11)
PRAI    US 2005-678118P     20050504 (60)
DT      Utility
FS      APPLICATION
LREP    VERTEX PHARMACEUTICALS INC., 130 WAVERLY STREET, CAMBRIDGE, MA,
        02139-4242, US
CLMN   Number of Claims: 34
ECL    Exemplary Claim: 1
DRWN   No Drawings
LN.CNT 2750
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 9 OF 25  USPATFULL on STN
AN      2006:254921  USPATFULL
TI      Quinazolines useful as modulators of ion channels
IN      Gonzalez, Jesus E. III, San Diego, CA, UNITED STATES
        Wilson, Dean M., San Diego, CA, UNITED STATES
        Termin, Andreas P., Encinitas, CA, UNITED STATES
        Grootenhuis, Peter D. J., San Diego, CA, UNITED STATES
        Zhang, Yulian, San Diego, CA, UNITED STATES
        Petzoldt, Benjamin J., La Jolla, CA, UNITED STATES
        Fanning, Lev Tyler Dewey, San Diego, CA, UNITED STATES
        Neubert, Timothy D., San Diego, CA, UNITED STATES
        Tung, Roger D., San Diego, CA, UNITED STATES
        Martinborough, Esther, San Diego, CA, UNITED STATES
        Zimmerman, Nicole, San Diego, CA, UNITED STATES
PI      US 20060217377      A1  20060928
AI      US 2004-935008      A1  20040902 (10)
RLI     Continuation-in-part of Ser. No. US 2004-792688, filed on 3 Mar 2004,
        PENDING
PRAI    US 2003-451458P     20030303 (60)
        US 2003-463797P     20030418 (60)
DT      Utility
FS      APPLICATION
LREP    VERTEX PHARMACEUTICALS INC., 130 WAVERLY STREET, CAMBRIDGE, MA,
        02139-4242, US
CLMN   Number of Claims: 252
ECL    Exemplary Claim: 1
DRWN   No Drawings
LN.CNT 10122
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 10 OF 25  USPATFULL on STN
AN      2006:182531  USPATFULL
TI      Quinazolines useful as modulators of ion channels
IN      Wilson, Dean, San Diego, CA, UNITED STATES
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       Fanning, Lev, San Marcos, CA, UNITED STATES
       Krenitsky, Paul, San Diego, CA, UNITED STATES
       Boger, Joshua, Concord, MA, UNITED STATES
PI     US 20060154935      A1  20060713
AI     US 2005-216899      A1  20050831 (11)
PRAI   US 2004-607245P     20040902 (60)
DT     Utility
FS     APPLICATION
LREP   VERTEX PHARMACEUTICALS INC., 130 WAVERLY STREET, CAMBRIDGE, MA,
       02139-4242, US
CLMN   Number of Claims: 65
ECL    Exemplary Claim: 1
DRWN   No Drawings
LN.CNT 3814
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 11 OF 25  USPATFULL on STN
AN     2005:331503  USPATFULL
TI     Voltage-dependent calcium channel beta subunit functional core
IN     Hirsch, Joel A., Raanana, ISRAEL
PI     US 20050288489      A1  20051229
AI     US 2005-126313      A1  20050511 (11)
PRAI   US 2004-569642P     20040511 (60)
DT     Utility
FS     APPLICATION
LREP   PEARL COHEN ZEDEK, LLP, 10 ROCKEFELLER PLAZA, SUITE 1001, NEW YORK, NY,
       10020, US
CLMN   Number of Claims: 16
ECL    Exemplary Claim: 1
DRWN   17 Drawing Page(s)
LN.CNT 5096
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 12 OF 25  USPATFULL on STN
AN     2005:324887  USPATFULL
TI     Method of treating lower urinary tract disorders
IN     Landau, Steven B., Wellesley, MA, UNITED STATES
       Miller, Cheryl L., Natick, MA, UNITED STATES
       Fraser, Matthew O., Apex, NC, UNITED STATES
PA     Dynogen, Inc. (U.S. corporation)
PI     US 20050282799      A1  20051222
AI     US 2005-124580      A1  20050506 (11)
RLI    Continuation of Ser. No. US 2004-863771, filed on 7 Jun 2004, PENDING
       Continuation of Ser. No. US 2004-817332, filed on 2 Apr 2004, GRANTED,
       Pat. No. US 6846823
PRAI   US 2004-536341P     20040113 (60)
       US 2003-496502P     20030820 (60)
       US 2003-461022P     20030404 (60)
DT     Utility
FS     APPLICATION
LREP   JONES DAY, 222 EAST 41ST ST, NEW YORK, NY, 10017, US
CLMN   Number of Claims: 7
ECL    Exemplary Claim: 1-70
DRWN   2 Drawing Page(s)
LN.CNT 3128
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 13 OF 25  USPATFULL on STN
AN     2005:313100  USPATFULL
TI     Method for inhibiting detrusor muscle overactivity
IN     Landau, Steven B., Wellesley, MA, UNITED STATES
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       Miller, Cheryl L., Natick, MA, UNITED STATES
       Fraser, Matthew O., Apex, NC, UNITED STATES
PI     US 20050272719      A1  20051208
AI     US 2005-122940      A1  20050504 (11)
RLI    Continuation of Ser. No. US 2004-863771, filed on 7 Jun 2004, PENDING
       Continuation of Ser. No. US 2004-817332, filed on 2 Apr 2004, GRANTED,
       Pat. No. US 6846823
PRAI   US 2004-536341P     20040113 (60)
       US 2003-496502P     20030820 (60)
       US 2003-461022P     20030404 (60)
DT     Utility
FS     APPLICATION
LREP   JONES DAY, 222 EAST 41ST ST, NEW YORK, NY, 10017, US
CLMN   Number of Claims: 37
ECL    Exemplary Claim: 1-70
DRWN   2 Drawing Page(s)
LN.CNT 3180
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 14 OF 25  USPATFULL on STN
AN     2005:306394  USPATFULL
TI     Peptides of CaV2.2 that inhibit pain
IN     Garry, Mary, Dallas, TX, UNITED STATES
       Bezprozvanny, Ilya, Dallas, TX, UNITED STATES
PA     Board of Regents, The University of Texas System (U.S. corporation)
PI     US 20050267036      A1  20051201
AI     US 2005-96281       A1  20050331 (11)
PRAI   US 2004-558383P     20040401 (60)
DT     Utility
FS     APPLICATION
LREP   FULBRIGHT & JAWORSKI L.L.P., 600 CONGRESS AVE., SUITE 2400, AUSTIN, TX,
       78701, US
CLMN   Number of Claims: 24
ECL    Exemplary Claim: 1
DRWN   7 Drawing Page(s)
LN.CNT 3877
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 15 OF 25  USPATFULL on STN
AN     2005:240044  USPATFULL
TI     Methods for the identification of compounds useful for the suppression
       of chronic neuropathic pain and compositions thereof
IN     Barclay, Jane, Novartis Institute for Medical Sciences, 5 Gower Place,
       London, UNITED KINGDOM  WC1E 6BN
       Ganju, Pamposh, London, FRANCE
PI     US 20050208044      A1  20050922
AI     US 2003-506551      A1  20030318 (10)
       WO 2003-EP2834          20030318
                               20050426  PCT 371 date
PRAI   US 2002-365487P     20020319 (60)
DT     Utility
FS     APPLICATION
LREP   NOVARTIS, CORPORATE INTELLECTUAL PROPERTY, ONE HEALTH PLAZA 104/3, EAST
       HANOVER, NJ, 07936-1080, US
CLMN   Number of Claims: 17
ECL    Exemplary Claim: 1
DRWN   No Drawings
LN.CNT 2564
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 16 OF 25  USPATFULL on STN
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AN      2005:57330  USPATFULL
TI      Pyrimidines useful as modulators of voltage-gated ion channels
IN      Wilson, Dean Mitchell, San Diego, CA, UNITED STATES
        Martinborough, Esther, San Diego, CA, UNITED STATES
        Neubert, Timothy Donald, San Diego, CA, UNITED STATES
        Termin, Andreas Peter, Encinitas, CA, UNITED STATES
        Gonzalez, Jesus E., III, San Diego, CA, UNITED STATES
        Zimmerman, Nicole, San Diego, CA, UNITED STATES
PI      US 20050049247      A1  20050303
AI      US 2004-884865      A1  20040702 (10)
PRAI    US 2003-484362P     20030702 (60)
        US 2003-500200P     20030904 (60)
DT      Utility
FS      APPLICATION
LREP    VERTEX PHARMACEUTICALS INC., 130 WAVERLY STREET, CAMBRIDGE, MA,
        02139-4242
CLMN    Number of Claims: 127
ECL     Exemplary Claim: 1
DRWN    No Drawings
LN.CNT 5298
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 17 OF 25  USPATFULL on STN
AN      2005:31472  USPATFULL
TI      Method of treating lower urinary tract disorders
IN      Landau, Steven B., Wellesley, MA, UNITED STATES
        Miller, Cheryl L., Natick, MA, UNITED STATES
        Fraser, Matthew O., Apex, NC, UNITED STATES
PA      Dynogen, Inc. (U.S. corporation)
PI      US 20050026909      A1  20050203
        US 7115606          B2  20061003
AI      US 2004-863770      A1  20040607 (10)
RLI     Continuation of Ser. No. US 2004-817332, filed on 2 Apr 2004, PENDING
PRAI    US 2004-536341P     20040113 (60)
        US 2003-496502P     20030820 (60)
        US 2003-461022P     20030404 (60)
DT      Utility
FS      APPLICATION
LREP    JONES DAY, 222 EAST 41ST ST, NEW YORK, NY, 10017
CLMN    Number of Claims: 49
ECL     Exemplary Claim: CLM-01-70
DRWN    2 Drawing Page(s)
LN.CNT 3245
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 18 OF 25  USPATFULL on STN
AN      2005:24028  USPATFULL
TI      Method of treating lower urinary tract disorders
IN      Landau, Steven B., Wellesley, MA, UNITED STATES
        Miller, Cheryl L., Natick, MA, UNITED STATES
        Fraser, Matthew O., Apex, NC, UNITED STATES
PA      Dynogen, Inc. (U.S. corporation)
PI      US 20050020577      A1  20050127
AI      US 2004-863771      A1  20040607 (10)
RLI     Continuation of Ser. No. US 2004-817332, filed on 2 Apr 2004, PENDING
PRAI    US 2004-536341P     20040113 (60)
        US 2003-496502P     20030820 (60)
        US 2003-461022P     20030404 (60)
DT      Utility
FS      APPLICATION
LREP    JONES DAY, 222 EAST 41ST ST, NEW YORK, NY, 10017
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CLMN   Number of Claims: 27
ECL    Exemplary Claim: CLM-01-70
DRWN   2 Drawing Page(s)
LN.CNT 3306
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 19 OF 25  USPATFULL on STN
AN      2004:315302  USPATFULL
TI      Method of treating lower urinary tract disorders
IN      Brettman, Lee R., Sudbury, MA, UNITED STATES
        Landau, Steven B., Wellesley, MA, UNITED STATES
        Fraser, Matthew O., Apex, NC, UNITED STATES
PA      DYNOGEN PHARMACEUTICALS, INC., BOSTON, MA (U.S. corporation)
PI      US 20040248979      A1  20041209
AI      US 2004-859922      A1  20040603 (10)
PRAI    US 2003-475636P     20030603 (60)
DT      Utility
FS      APPLICATION
LREP    HAMILTON, BROOK, SMITH & REYNOLDS, P.C., 530 VIRGINIA ROAD, P.O. BOX
        9133, CONCORD, MA, 01742-9133
CLMN    Number of Claims: 61
ECL     Exemplary Claim: 1
DRWN    3 Drawing Page(s)
LN.CNT 3699
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 20 OF 25  USPATFULL on STN
AN      2004:315214  USPATFULL
TI      Quinazolines useful as modulators of ion channels
IN      Gonzalez, Jesus E., III, San Diego, CA, UNITED STATES
        Wilson, Dean Mitchell, San Diego, CA, UNITED STATES
        Termin, Andreas Peter, Encinitas, CA, UNITED STATES
        Grootenhuis, Peter Diederik Jan, San Diego, CA, UNITED STATES
        Zhang, Yulian, San Diego, CA, UNITED STATES
        Petzoldt, Benjamin John, La Jolla, CA, UNITED STATES
        Fanning, Lev Tyler Dewey, San Diego, CA, UNITED STATES
        Neubert, Timothy Donald, San Diego, CA, UNITED STATES
        Tung, Roger, San Diego, CA, UNITED STATES
        Martinborough, Esther, San Diego, CA, UNITED STATES
        Zimmermann, Nicole, San Diego, CA, UNITED STATES
PI      US 20040248890      A1  20041209
AI      US 2004-792688      A1  20040303 (10)
PRAI    US 2003-451458P     20030303 (60)
        US 2003-463797P     20030418 (60)
DT      Utility
FS      APPLICATION
LREP    VERTEX PHARMACEUTICALS INC., 130 WAVERLY STREET, CAMBRIDGE, MA,
        02139-4242
CLMN    Number of Claims: 251
ECL     Exemplary Claim: 1
DRWN    No Drawings
LN.CNT 9550
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 21 OF 25  USPATFULL on STN
AN      2004:268326  USPATFULL
TI      Method of treating lower urinary tract disorders
IN      Landau, Steven B., Wellesley, MA, UNITED STATES
        Miller, Cheryl L., Natick, MA, UNITED STATES
        Fraser, Mathew O., Apex, NC, UNITED STATES
PA      Dynogen Pharmaceuticals, Inc., Boston, MA (U.S. corporation)
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PI      US 20040209869      A1  20041021
        US 6846823          B2  20050125
AI      US 2004-817332      A1  20040402 (10)
PRAI    US 2004-536341P     20040113 (60)
        US 2003-496502P     20030820 (60)
        US 2003-461022P     20030404 (60)
DT      Utility
FS      APPLICATION
LREP    HAMILTON, BROOK, SMITH & REYNOLDS, P.C., 530 VIRGINIA ROAD, P.O. BOX
        9133, CONCORD, MA, 01742-9133
CLMN    Number of Claims: 70
ECL     Exemplary Claim: 1
DRWN    2 Drawing Page(s)
LN.CNT 3437
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 22 OF 25  USPATFULL on STN
AN      2003:154406  USPATFULL
TI      Collections of transgenic animal lines (living library)
IN      Serafini, Tito Andrew, San Mateo, CA, UNITED STATES
PI      US 20030106074      A1  20030605
AI      US 2002-77025       A1  20020214 (10)
RLI     Continuation-in-part of Ser. No. US 2001-783487, filed on 14 Feb 2001,
        PENDING
DT      Utility
FS      APPLICATION
LREP    PENNIE AND EDMONDS, 1155 AVENUE OF THE AMERICAS, NEW YORK, NY, 100362711
CLMN    Number of Claims: 159
ECL     Exemplary Claim: 1
DRWN    13 Drawing Page(s)
LN.CNT 5667
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 23 OF 25  USPATFULL on STN
AN      2003:72979  USPATFULL
TI      Collections of transgenic animal lines (living library)
IN      Serafini, Tito Andrew, San Mateo, CA, UNITED STATES
PI      US 20030051266      A1  20030313
AI      US 2001-783487      A1  20010214 (9)
DT      Utility
FS      APPLICATION
LREP    PENNIE AND EDMONDS, 1155 AVENUE OF THE AMERICAS, NEW YORK, NY, 100362711
CLMN    Number of Claims: 158
ECL     Exemplary Claim: 1
DRWN    No Drawings
LN.CNT 4818
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 24 OF 25  USPAT2 on STN
AN      2005:31472  USPAT2
TI      Method of treating lower urinary tract disorders
IN      Landau, Steven B., Wellesley, MA, UNITED STATES
        Miller, Cheryl L., Natick, MA, UNITED STATES
        Fraser, Matthew O., Apex, NC, UNITED STATES
PA      Dynogen Pharmaceuticals, Inc., Waltham, MA, UNITED STATES (U.S.
        corporation)
PI      US 7115606          B2  20061003
AI      US 2004-863770          20040607 (10)
RLI     Continuation of Ser. No. US 2004-817332, filed on 2 Apr 2004, Pat. No.
        US 6846823
PRAI    US 2004-536341P     20040113 (60)
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       US 2003-496502P     20030820 (60)
       US 2003-461022P     20030404 (60)
DT     Utility
FS     GRANTED
EXNAM  Primary Examiner: Owens, Amelia A.
LREP   Jones Day
CLMN   Number of Claims: 16
ECL    Exemplary Claim: 1
DRWN   2 Drawing Figure(s); 2 Drawing Page(s)
LN.CNT 3189
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1   ANSWER 25 OF 25  USPAT2 on STN
AN     2004:268326  USPAT2
TI     Method of treating lower urinary tract disorders
IN     Landau, Steven B., Wellesley, MA, United States
       Miller, Cheryl L., Natick, MA, United States
       Fraser, Matthew O., Apex, NC, United States
PA     Dynogen Pharmaceuticals, Inc., Waltham, MA, United States (U.S.
       corporation)
PI     US 6846823          B2  20050125
AI     US 2004-817332          20040402 (10)
PRAI   US 2004-536341P     20040113 (60)
       US 2003-496502P     20030820 (60)
       US 2003-461022P     20030404 (60)
DT     Utility
FS     GRANTED
EXNAM  Primary Examiner: Killos, Paul J.
LREP   Hamilton, Brook, Smith & Reynolds, P.C.
CLMN   Number of Claims: 62
ECL    Exemplary Claim: 1
DRWN   2 Drawing Figure(s); 2 Drawing Page(s)
LN.CNT 3505
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
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